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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,785

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Fritz Gyger

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EXAMINER

MYERS, JESSICA L

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

07/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,785	Applicant(s) GYGER, FRITZ	
	Examiner JESSICA L. MYERS	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/6/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-49 is/are pending in the application.
- 4a) Of the above claim(s) 24-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 42-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/8/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 24-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 6/6/08.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

In Reference to Claim 42

Claim 42 recites the limitation "the pump device" in line 5. There is insufficient antecedent basis for this limitation in the claim.

In Reference to Claim 44

Claim 44 recites the limitation "the inner sealing body" in line 5. There is insufficient antecedent basis for this limitation in the claim.

In Reference to Claim 45

Claim 45 recites the limitation "the connecting body" in line 3. There is insufficient antecedent basis for this limitation in the claim.

In Reference to Claim 46

Claim 46 recites the limitation "the other one of the sealing surfaces" in line 4. There is insufficient antecedent basis for this limitation in the claim.

In Reference to Claims 42, 43, 44, 45, 48, and 49

Regarding claims 42, 43, 44, 45, 48, and 49, the phrase "at least" renders the claim indefinite because it is unclear how many pairs of sealing surfaces there are, and whether each pump unit has a single pair of sealing surfaces or if each unit has multiple pairs of sealing surfaces.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 42 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 3,510,233 to Strebel et al. (Strebel et al.).

In Reference to Claim 42

Strebel et al. teach a pump (see figure 2) for delivering precisely determined, small liquid flows under high pressures comprising

at least one pump device including a displacement chamber (cylinder barrel (13) and cylinder liner (14)), a piston that is movable in the displacement chamber (reciprocating piston (43));

at least one working medium access bore (see supply and delivery conduits formed in members (62)) of the pump device having a detachable connecting assembly (members (62) and inserts (66) are detachable by unscrewing threaded studs (37 and

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38)) including at least one pair of sealing surfaces forming a junction that is tight to a working medium (lens shaped seating surface (68) of insert (66) along with the corresponding surface of member (62) form a pair of sealing surfaces), one sealing surface is essentially dome-shaped and convex (surface (68)) and the other sealing surface is essentially concave and conical (the corresponding surface of member (62)), and the sealing surfaces have a center with a respective opening of a channel for the working medium defining an annular contact line between the two sealing surfaces even if the channel openings are not precisely aligned to each other (the lens shape of the seating surface (68) ensures that an annular contact line is always formed between the insert (66) and member (62) regardless of whether the bores within them are aligned).

In Reference to Claim 45

Strebel et al. teach the pump according to claim 42 (see the rejection of claim 42 above), further comprising at least a first and a third pair of sealing surfaces (the first pair of sealing surfaces are the lens shaped seating surface (68) of insert (66) along with the corresponding surface of member (62), while the third pair of sealing surfaces are formed by the base of the insert (66) and the top of the bodies (57 and 60) of the valve assembly) each including an inner and an external sealing surface (the inner sealing surfaces are those formed on the insert (66)), and the two inner sealing surfaces each face the other pair of sealing surfaces (each inner surface faces the corresponding outer surface and forms a seal with it), a connecting body disposed between the external sealing surfaces of the two pairs of sealing surfaces (the connecting body is the

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insert (66) itself), so that the two pairs of sealing surfaces each form a tight junction with the connecting body (see column 5 lines 15-42).

3. Claims 42, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 2,841,092 to Whiteman et al. (Whiteman et al.).

In Reference to Claim 42

Whiteman et al. teach a pump (see figure 1) for delivering precisely determined, small liquid flows under high pressures comprising

at least one pump device including a displacement chamber (pump chamber (13)), a piston that is movable in the displacement chamber (plunger (14));

at least one working medium access bore (suction and discharge ports (15 and 16)) of the pump device having a detachable connecting assembly (members (49 and 56) are threaded for attachment, see figure 1) including at least one pair of sealing surfaces forming a junction that is tight to a working medium (the end surfaces of member (52)), one sealing surface is essentially dome-shaped and convex (the upper end of member (52) is tapered to cooperate with the tapered opening of body member (12)) and the other sealing surface is essentially concave and conical (the tapered opening of body member (12)), and the sealing surfaces have a center with a respective opening of a channel for the working medium defining an annular contact line between the two sealing surfaces even if the channel openings are not precisely aligned to each other (the tapered shape of the body member (12) ensures that an annular contact line

is always formed between the body member (12) and member (52) regardless of whether the bores within them are aligned).

In Reference to Claim 46

Whiteman et al. teach the pump according to claim 42 (see the rejection of claim 42 above), further comprising a pair of a first and a second contact surface contacting each other (the other tapered and of member (52) along with the tapered opening in member (55) form another pair of contact surfaces), a second connecting body (the outer end of tapered member (52) serves as a second connecting body) in the connecting assembly on which the first contact surface and the sealing surface are formed, the second connecting body being held between the second contact surface (the tapered opening in member (55)) and the other one of the sealing surfaces (the tapered opening in body member (12)); a duct for the working medium fixedly connected to the second connecting body wherein the duct communicates with the channel having the opening located in the sealing surface of the second connecting body (a duct runs through each of the sealing surfaces and the member (52) to allow liquid into and out of the pumping chamber).

In Reference to Claim 47

Whiteman et al. teach the pump according to claim 46 (see the rejection of claim 46 above), wherein the contact surfaces are cambered and complementary to each other to center the second connecting body in the second contact surface (All of the contact surfaces are tapered or slightly arched so that the ducts running through the

surfaces and the detachable members will be aligned when they are connected together.).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strebel et al. in view of U.S. Patent 4,846,218 to Upchurch (Upchurch).

In Reference to Claim 43

Strebel et al. teach the pump according to claim 42 (see the rejection of claim 42 above), but does not teach that a seal is interposed between at least one pair of the sealing surfaces.

Upchurch teaches a removable valve assembly for use in a chromatography pump, where a tapered end (222) of the valve assembly is provided with an end seal (224) that abuts a pump body when the valve assembly is screwed into place using threads (104) on its outer perimeter. It would have been obvious to one of ordinary skill in the art at the time of invention to include the seal of Upchurch between the sealing surfaces of Strebel et al. in order to prevent any leakage between the bores of the insert and the bores of the pump body.

In Reference to Claim 44

Strebel et al. teach the pump according to claim 42 (see the rejection of claim 42 above), but does not teach that a seal is interposed between at least one pair of the sealing surfaces.

Upchurch teaches a removable valve assembly for use in a chromatography pump, where a tapered end (222) of the valve assembly is provided with an end seal (224) that abuts a pump body when the valve assembly is screwed into place using threads (104) on its outer perimeter. It would have been obvious to one of ordinary skill in the art at the time of invention to include the seal of Upchurch between the sealing surfaces of Strebel et al. in order to prevent any leakage between the bores of the insert and the bores of the pump body. When the apparatus of Strebel et al. is so modified by Upchurch, it would consist of a first and a second pair of the sealing surfaces (lens shaped seating surface (68) of insert (66) and the corresponding surface of member (62)), a sealing body disposed between the sealing surfaces, the sealing body having the respective inner sealing surfaces of the two pairs of sealing surfaces formed thereon. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of invention to vary the materials used, as well as the shapes and dimensions of the valve apparatus according to the technical requirements of the apparatus. Thus it would have been obvious to one of ordinary skill in the art at the time of invention to form the sealing body out of a pressure resistant, synthetic material.

6. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whiteman et al. in view of U.S. Patent 1,586,278 to Bardenheuer (Bardenheuer).

Whiteman et al. teach the pump according to claim 46 (see the rejection of claim 46 above), but does not teach that the sealing surfaces is provided with a concentrically stepped surface in order to provide a plurality of sealing lines.

Bardenheuer teaches a compressor or pump apparatus (10) that has additional clearance pockets (16) in communication with the pumping chamber, where the pockets can be attached or detached to the pump body by cap-screws (18) and a stepped sealing arrangement (see figure 1). The stepped sealing arrangement consists of two sealing surfaces, one of which is a convex, stepped protrusion, while the other is a concave, stepped indentation. It would have been obvious to one of ordinary skill in the art at the time of invention to form the sealing surfaces of Whiteman et al. in a stepped fashion as taught by Bardenheuer in order to provide a larger sealing surface area between the sealing faces, and to better align the bores of the separate components.

7. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Whiteman et al. in view of U.S. Patent 4,595,495 to Yotam et al. (Yotam et al.).

Whiteman et al. teach a first pump device each according to the pump of claim 46 (see the rejection of claim 46 above) comprised of a displacement chamber (pump chamber (13)) and a piston (plunger (14)), but do not teach a second pump device downstream of the first pump device that is operable as a storage device of pulsation of the first pump device.

Yotam et al. teach a pump device with multiple cylinder bodies (59, 69, and 75) and multiple pistons (58, 68, and 74) arranged in series (see figure 7) in such a way that

the outlet of one pump is connected to the inlet of another pump. It would have been obvious to one of ordinary skill in the art at the time of invention to connect several of the pumps disclosed by Whiteman et al. in series as taught by Yotam et al. in order to discharge fluid at a higher pressure or to ensure that the fluid is discharged at a constant pressure. When multiple piston pumps are arranged in series as taught by Yotam et al., the pump stages downstream of the first pump stage would act to store pulsation from the first pump stage.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA L. MYERS whose telephone number is (571)270-5059. The examiner can normally be reached on Monday through Friday, 8:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
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/JLM